

Green Collar Jobs Council

Dec. 16, 2010

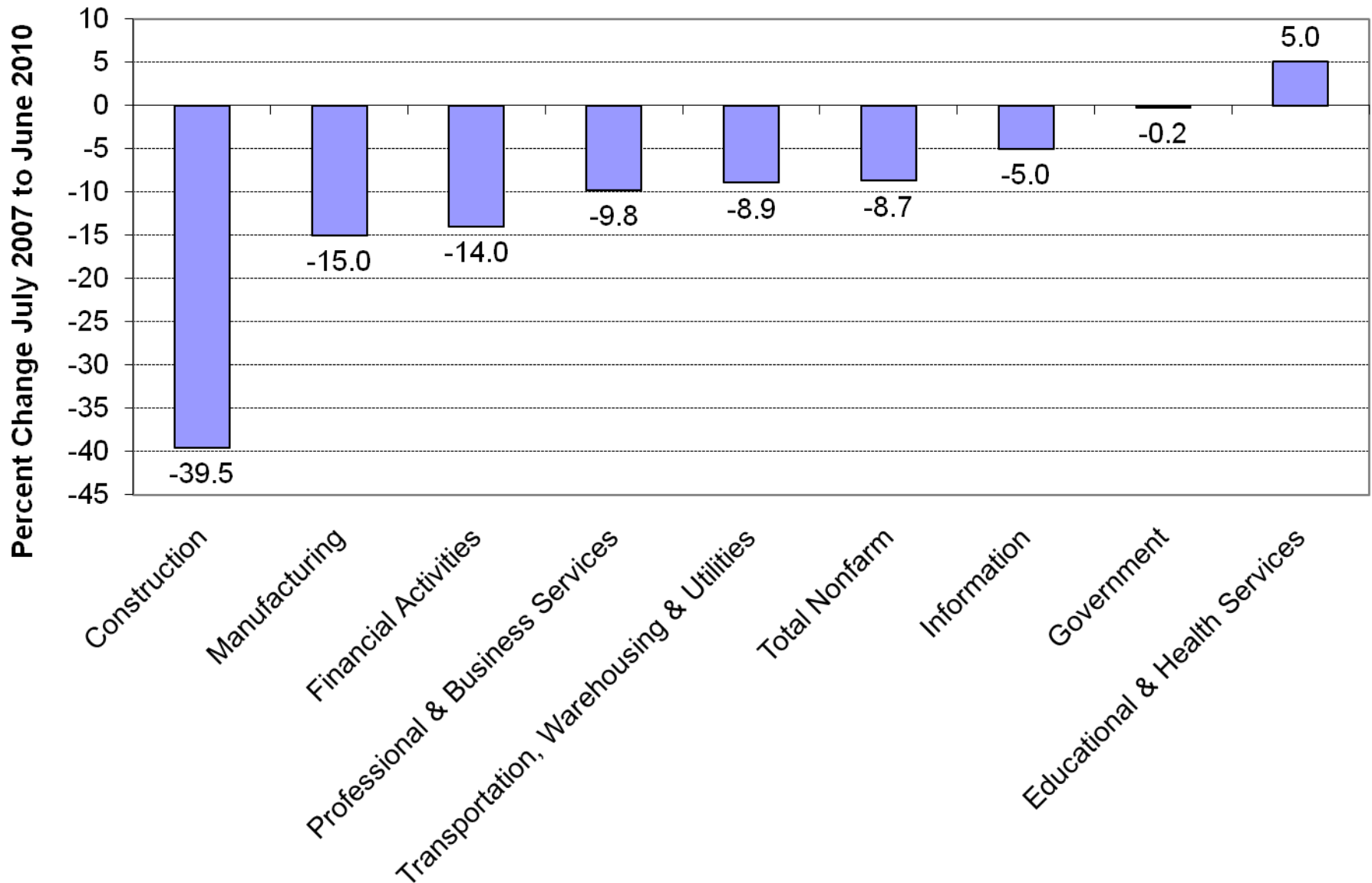
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UC Berkeley Labor Center

3rd party report funded by the ratepayers of California by
UC Berkeley, CC Centers for Excellence, Research into Action

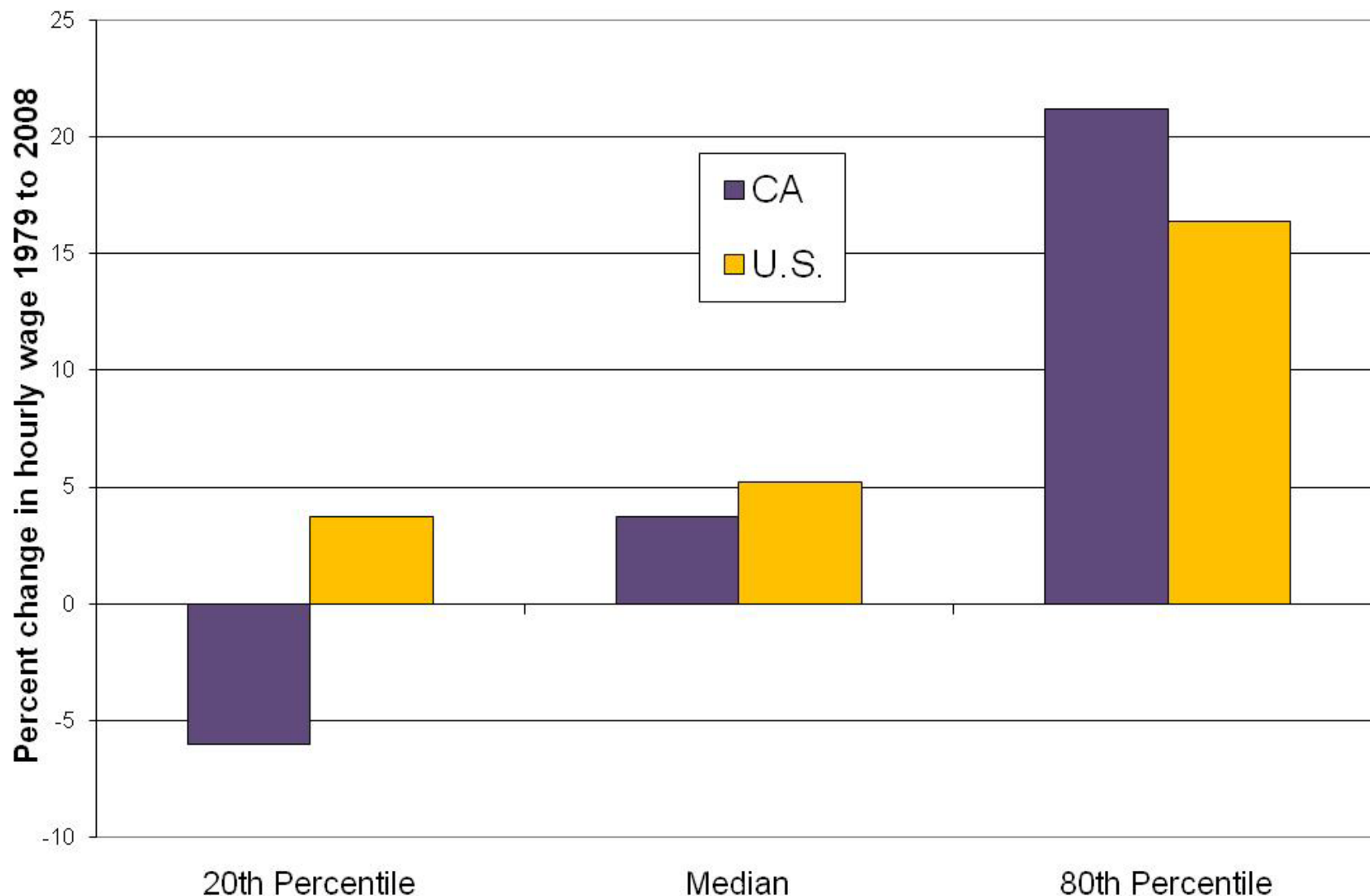


Job loss in California, Selected Sectors, 2007-2010



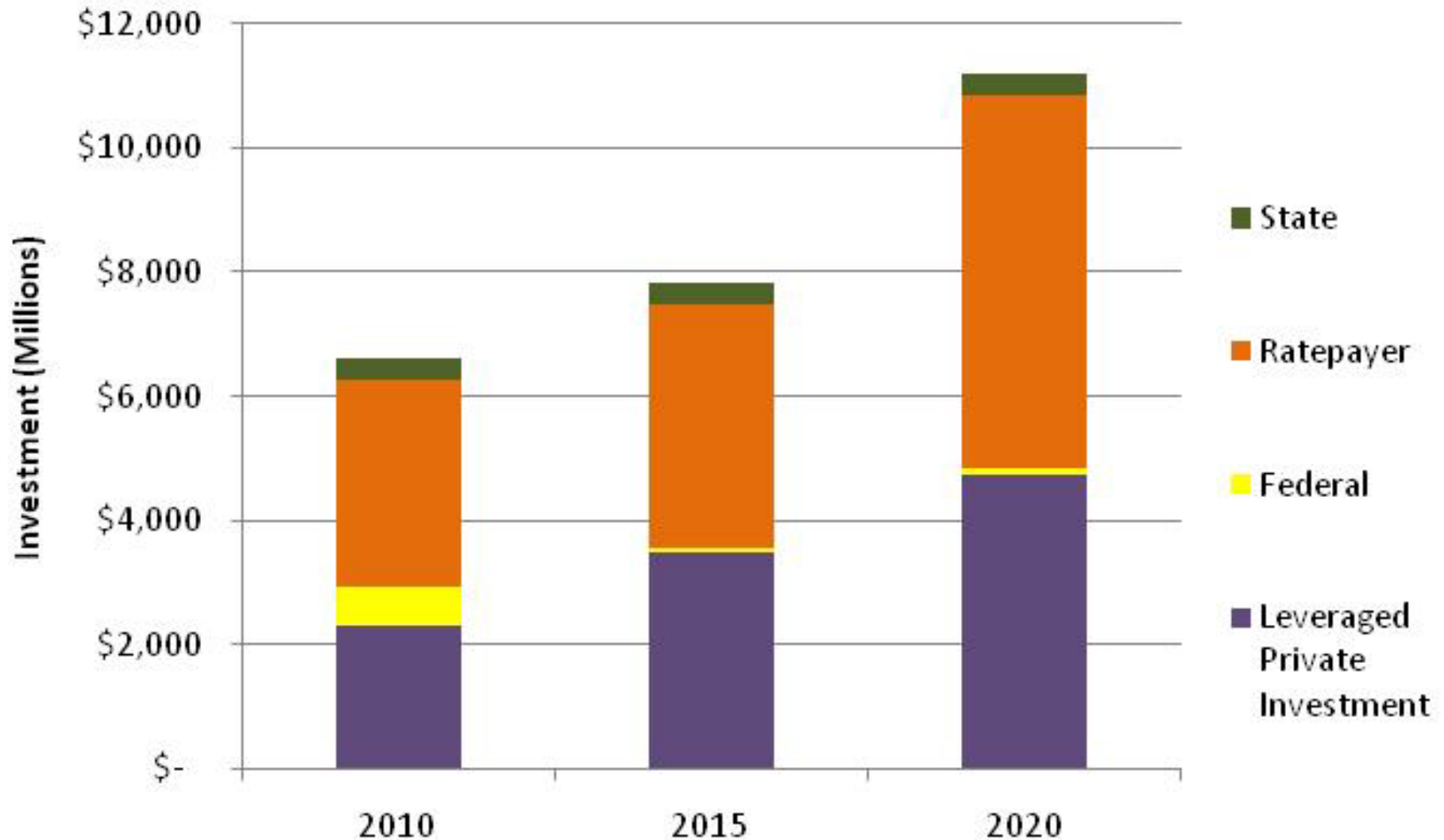
Increasing pay inequality

Change in wages by income class, 1979-2008



Source: California Budget Project using U.S. Census Bureau data

Medium Scenario Investment by Source for Projection Years



Job impacts in 2020

- **11** billion investment in 2020
- **211,000** total job person years in 2020
- **38,900** direct job person years in 2020, compared to 2009
- **3,300** direct job person years in 2020, compared to 2019
- **2,300** new direct job person years in 2020 in occupations needing training
- **5,300** new workers in 2020 needing training



Workers Needing Training in 2020

<u>Occupation Group</u>	<u>Workers Needing Training</u>
Administration	319
Administration (sales-related)	370
Architecture and Engineering	387
Building envelope (construction trades)	1,966
Building envelope (performance trades)	96
Management (blue-collar)	502
Management (white-collar)	152
Manufacturing	10
Mechanical and electrical trades	1,459
Total	5,262

Matching Labor Demand to Supply in 2020: Two Unemployment Scenarios

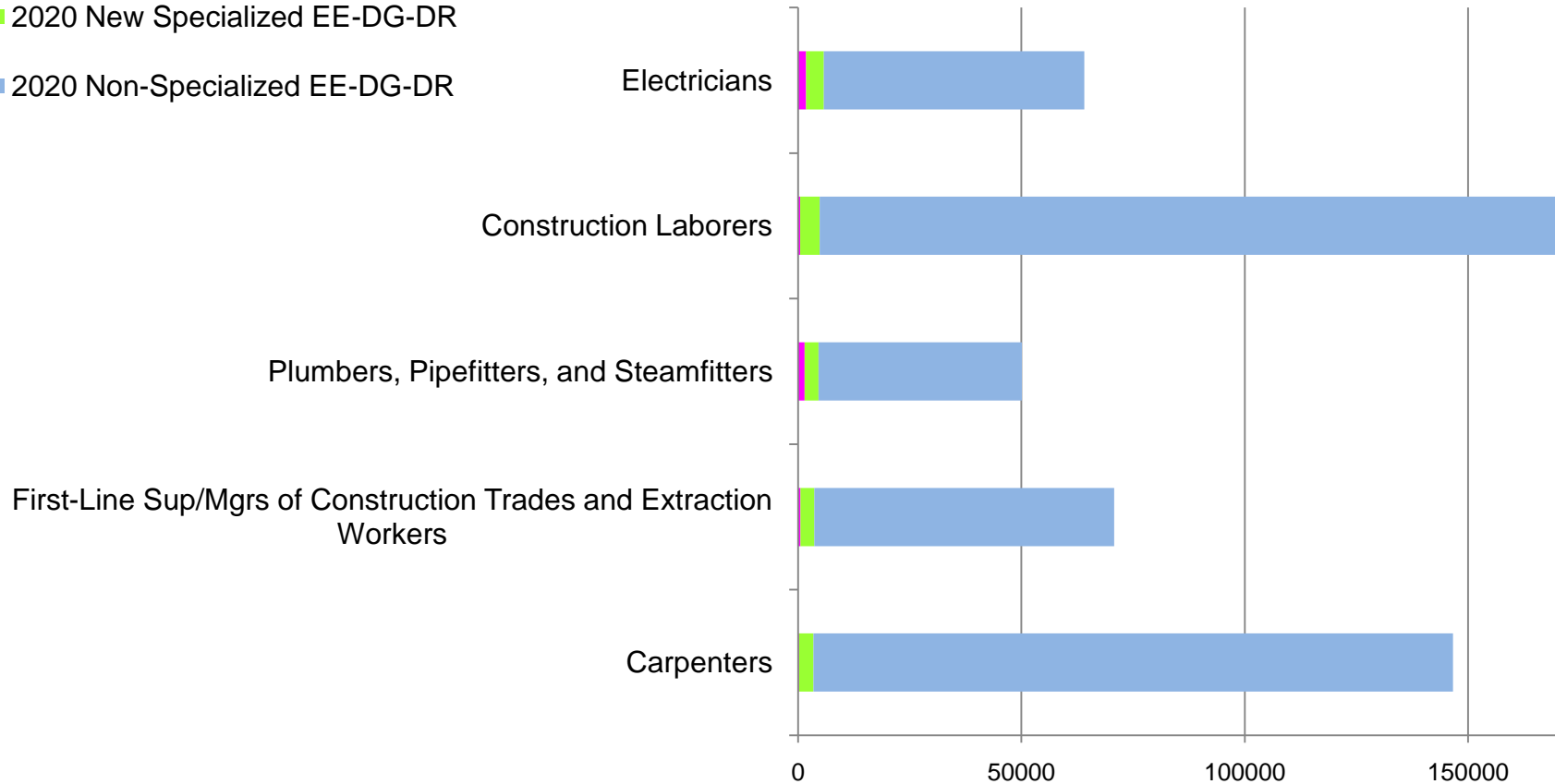
EE-DG-DR Occupation Group	Low (4%) Unemployment Scenario Unemployed Workers	High (8%) Unemployment Scenario Unemployed Workers	2020 EE-DG-DR Workers Needing Training
Administration (general)	32,232	38,882	319
Administration (sales-related)	29,866	36,027	370
Architecture and engineering	6,794	8,196	387
Building envelope (construction)	47,916	57,802	1,966
Building envelope (performance)	330	398	96
Management (blue-collar)	11,633	14,033	502
Management (white-collar)	21,454	25,880	152
Manufacturing	5,718	6,897	10
Mechanical and electrical trades	20,693	24,962	1,459
Total EE-DG-DR Occ. Group	176,636	213,079	5,262

Other Incumbent and New Workers Needing EE-DG-DR Training

■ Existing (2009) Specialized EE-DG-DR

■ 2020 New Specialized EE-DG-DR

■ 2020 Non-Specialized EE-DG-DR



Workforce Infrastructure

8 Types of Institutions

- Regional Occupational Programs
- Community Colleges
- Community Based Organizations
- Private Sector Institutions
- Utility Training Centers
- 4 year Colleges & Universities
- Apprenticeships
- K-12 Schools

**548
Unique
Training
Programs**



Pathways: Professional and Managerial Occupations

Estimated Annual
Graduates Statewide

Community College

Architecture:	340
Engineering:	23
Construction Management:	90
TOTAL:	660

Transfer Program,
2 Years

4-Year College and University

Architecture:	1,800
Engineering:	2,200
Construction Management:	300
TOTAL:	4,300

4-Year and Graduate Degree Programs,
4+ Years

Bachelor's
and/or
Master's
Degree

Professional-Level Occupations

Skills Upgrade

Utility Energy Centers

Architecture:	2,200
Engineering:	4,100
TOTAL:	6,300

Private

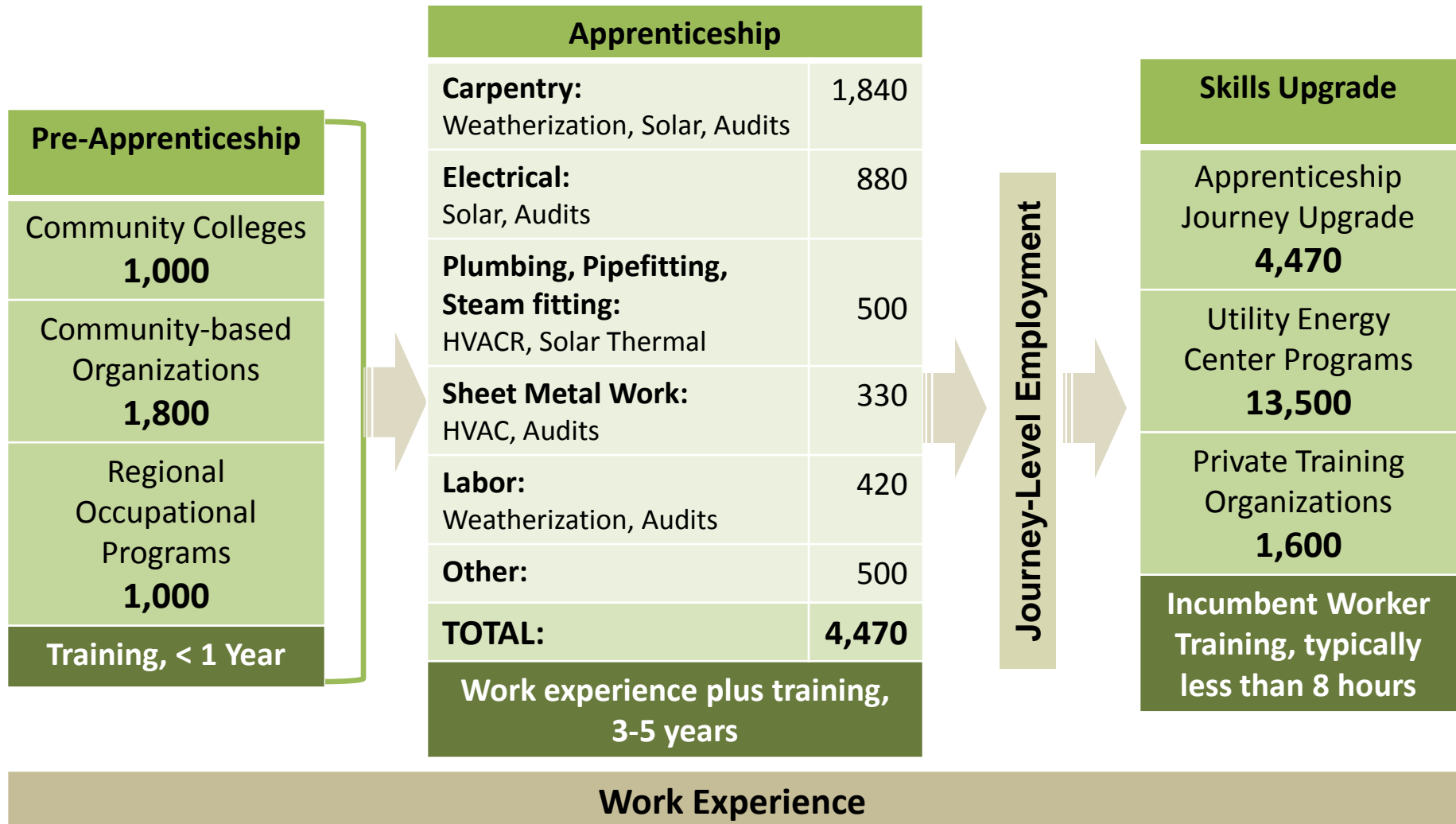
Architecture	4,600
Construction Management:	500
TOTAL:	5,100

Incumbent Worker
Training,
less than 8 hours



Pathways: Commercial and Public Sectors, Construction Trades and Energy Specialties

Estimated Annual
Graduates Statewide



Pathways: Residential and Small Commercial Sectors, Construction Trades and Energy Specialties

Estimated Annual Graduates Statewide

Basic Training, typically < 1 year

Community-Based Organizations
1,800

Regional Occupational Programs
1,000

Private Training Organizations
8,700



Entry-Level Occupations

Weatherization Installer/Technician
Energy Auditor
Solar Installer/Technician
Wind Installer/Technician
General and Green Construction
HVAC

Intermediate Training, 1-2 Years

Community Colleges
1,000

**Certificate
and/or
Associate's
Degree**



Intermediate-Level Occupations

Construction Inspectors:	200
General Construction:	90
Electrical:	200
HVAC:	420
Plumbing:	20



Pathways: Professional and Managerial Occupations

Estimated Annual
Graduates Statewide

Community College

Architecture:	340
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TOTAL:	660

Transfer Program,
2 Years

4-Year College and University

Architecture:	1,800
Engineering:	2,200
Construction Management:	300
TOTAL:	4,300

4-Year and Graduate Degree Programs,
4+ Years

Bachelor's
and/or
Master's
Degree

Professional-Level Occupations

Skills Upgrade

Utility Energy Centers

Architecture:	2,200
Engineering:	4,100
TOTAL:	6,300

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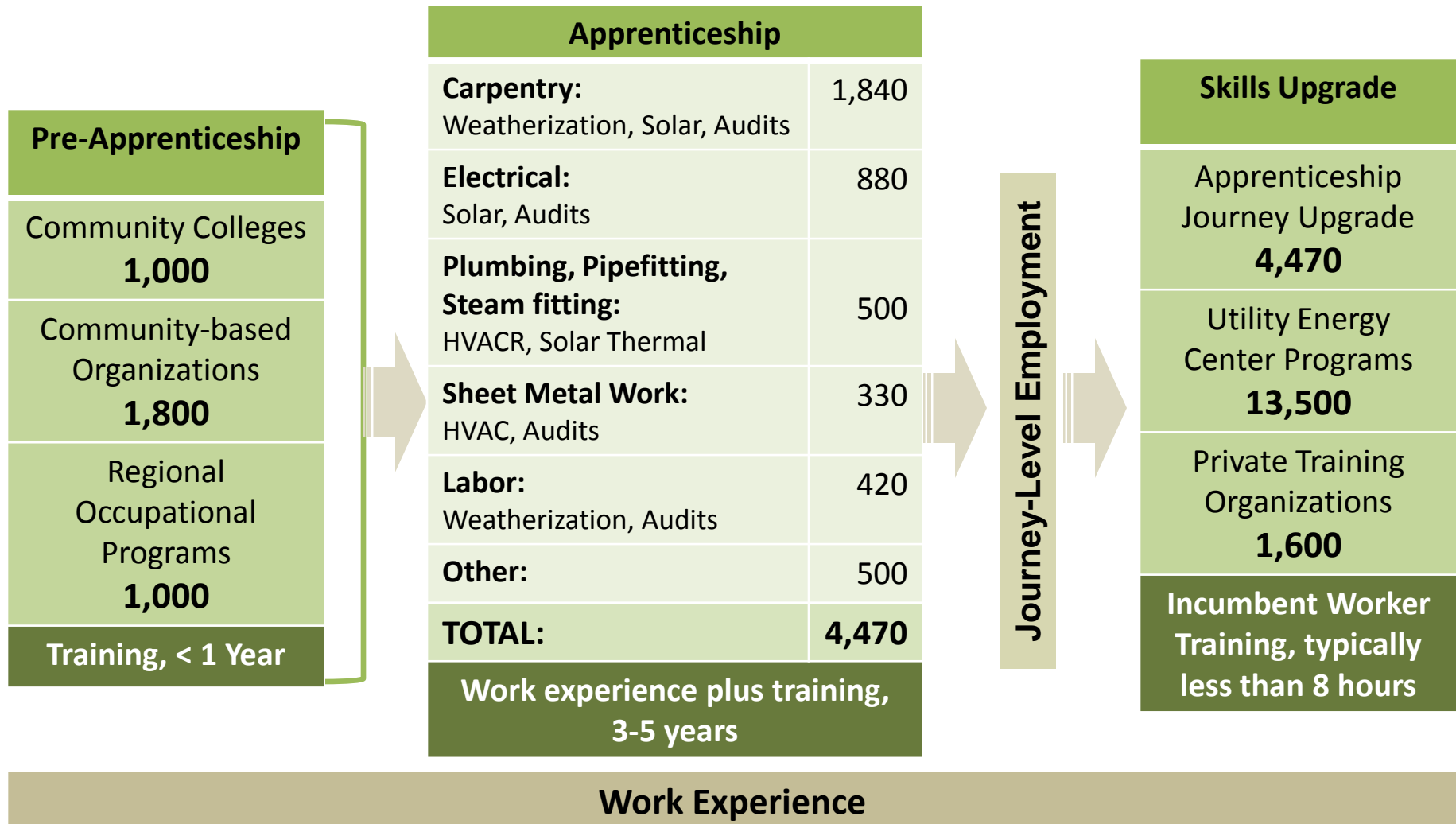
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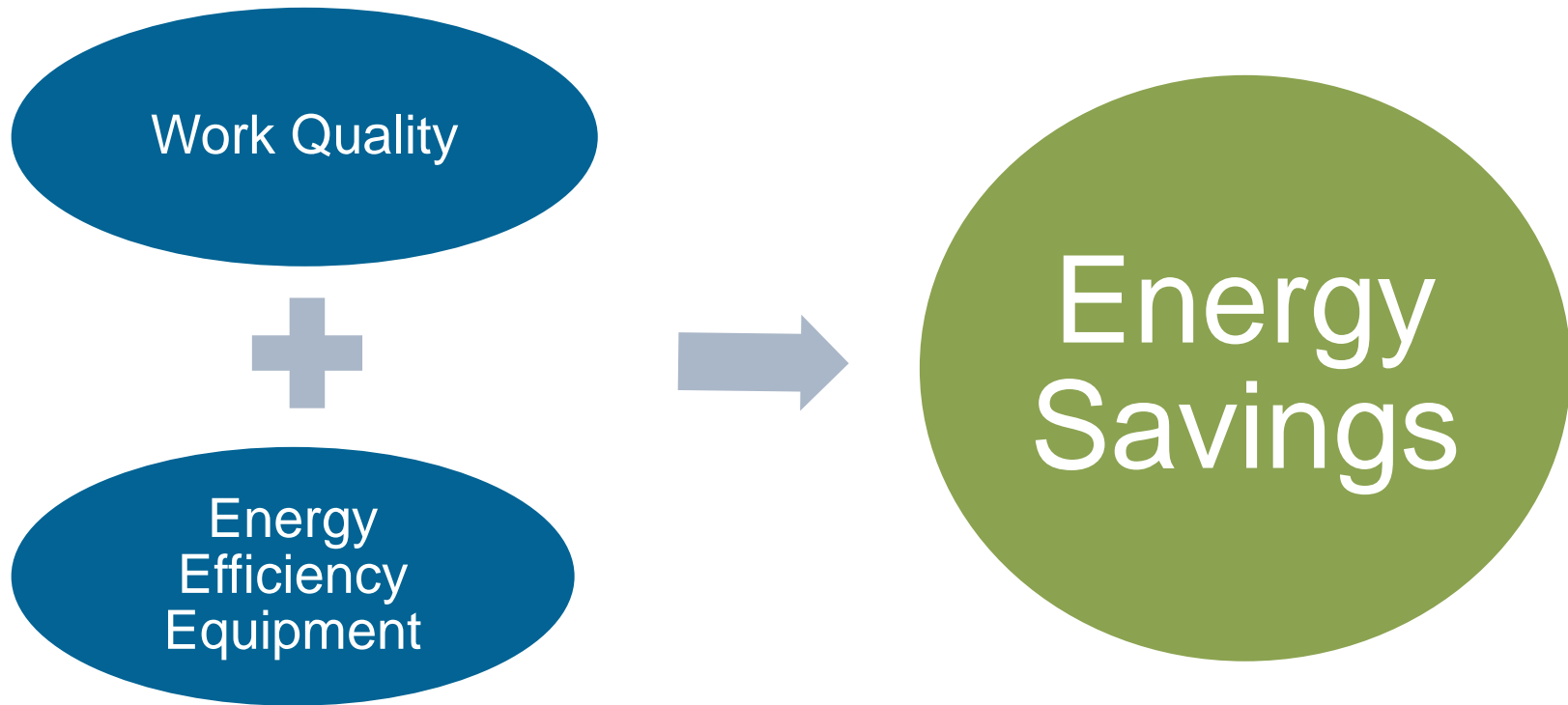


What are the needs?

- Demand-driven workforce planning
- Incumbent worker training
- Integration of EE into existing training
- Standardization of skills and certifications



Quality Issues in HVAC



- Incentives target equipment
- 30-50% of new HVAC systems installed improperly



The low road in HVAC

	High Road	Low Road
Market Segments	<ul style="list-style-type: none"> •Large commercial •Public buildings 	<ul style="list-style-type: none"> •Residential •Small Commercial
Reported Quality Issues	Low	High
Permit Compliance	High	<10%
Wages	Apprentices: \$14-\$22/hr Prevailing: \$25-\$55/hr	Entry level: \$10-\$15/hr Max around \$25/hr
Worker Turnover	Low	High
Training	5 year Apprenticeship	On the job, skills specific



Low road = High turnover

IOU HVAC Training Investments
\$10 million

Up to 30%
wasted as
workers leave
the industry



You can't train your way out of the problem

Certification requirements

Licensing + code enforcement

\$10 million in training

Support for Building Inspectors

Clean it up!



Which path will we take?

- High skills
- High wages
- High Quality



- Low skills
- Low wages
- Low Quality



Recommendations

- **Labor demand: Standards and certifications to build the high road**
- **Workforce preparation: Planning and coordination**



Energy efficiency policy and programs should **explore options and costs** of encouraging standards and certifications

- 3rd party certification requirements for incentives
- Best value contracting process
- DOE skills standards for four major jobs in residential retrofit
- Contractor licensing and enforcement
- Monitoring labor conditions and cost of low road
- Consider high road agreements



Recommendations for workforce preparation

- Green existing long-term occupational training and incumbent upgrade training– don't start new programs
- Promote system-wide collaboration between the community colleges and the apprenticeship programs
- Create stackable certifications and credentials tied as much as possible to industry recognized standards
- During the recession, consider wage supports for on the job training linked to certification



Where do energy goals and workforce goals meet

- It's not just about training:
- It about creating the market conditions that can support quality and a skilled workforce

